

Operating Instructions

Type: ME-40 / MA-40
230 Volts

Serial No.:
P.O. No.:
P.O. date:

K02845 for Hand Extruder Ident-No.
K02746
K02747
K02748

⚠ These operating instructions contain important information to be observed for hand extruder operation and maintenance. It is therefore imperative that the operating instructions are read and their contents is fully understood by the operator before the hand extruder is being placed in service.



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Hand Extruder ME-40/MA-40

Scope of delivery:

Please check, if the delivery is complete.

The delivery comprises:

1 hand extruder
1 handle
1 welding shoe, shaped
3 air nozzles

1 extruder stand
1 hot-air hood

Table of Contents

1	GENERAL	5
2	SAFETY	5
2.1	IDENTIFICATION OF INFORMATION IN THE OPERATING INSTRUCTIONS.....	6
2.2	PERSONNEL QUALIFICATION AND TRAINING.....	6
2.3	RISKS RESULTING FROM NON-OBSERVANCE OF THE SAFETY INSTRUCTIONS.....	6
2.4	SAFE WORKING PRACTICES	6
2.5	SAFETY INSTRUCTIONS FOR OPERATOR/USER	6
2.6	SAFETY INSTRUCTIONS FOR MAINTENANCE, INSPECTION AND MOUNTING	8
2.7	UNAUTHORISED MODIFICATIONS AND SPARE PARTS	8
3	TRANSPORT AND STORAGE	9
3.1	TRANSPORT	9
3.2	STORAGE	9
3.3	RETURN TO MUNSCH	9
4	PRODUCT DESCRIPTION.....	10
4.1	ALLOWABLE SERVICE RANGE	10
4.2	GENERAL DESCRIPTION	10
5	STARTUP AND SHUTOFF	11
5.1	GENERAL	11
5.2	PREPARATION	11
5.3	STARTING THE HAND EXTRUDER	12
5.4	WELDING WITH THE HAND EXTRUDER.....	13
5.4.1	<i>Introducing the welding rod.....</i>	13
5.4.2	<i>Replacement and ageing of welding rod</i>	13
5.4.3	<i>Welding direction/rate</i>	14
5.4.4	<i>Interruption of work</i>	14
5.4.5	<i>Shutoff.....</i>	14
5.4.6	<i>Transport/storage.....</i>	15
5.5	ADJUST TEMPERATURE CONTROLLER	15
5.5.1	<i>Adjust temperature controller.....</i>	15
6	MAINTENANCE/INSPECTION	16
6.1	MAINTENANCE/INSPECTION OF HAND EXTRUDER ME-40/MA-40	16
6.2	DISMANTLING	16
6.2.1	<i>ME-40 hand extruder with external air supply</i>	16
6.2.2	<i>MA-40 hand extruder with integrated air supply</i>	16
7	MALFUNCTIONS , CAUSES AND REMEDIES.....	30
7.1	TROUBLE-SHOOTING.....	30
7.2	FAULT DIAGNOSIS	30
8	TECHNICAL DATA.....	32

Konformitätserklärung des Herstellers im Sinne der EG-Maschinenrichtlinie 98/37/EG Anhang II B, **Declaration of Conformity by the Manufacturer** as defined by machinery directive 98/37/EEC, Annex II B



MUNSCH Kunststoff-Schweißtechnik GmbH
Im Staudchen
D-56235 Ransbach-Baumbach

hereby declares on its own behalf and responsibility that the hand extruder:

Machine type: Hand Extruder
Design designation: ME-40 MA-40

to which this declaration refers conforms to the following standards, codes or regulations:

☒	EU Machinery Directive 98/37/EG	☒	EN 55014-2
☒	EU Low Voltage Directive 73/23/EWG	☒	EN 61000-3-2
☒	EU Directive EMV 89/336/EWG	☒	EN 61000-3-3
☒	EN 55011	☐	
☒	EN 55014-1	☐	

Conformance of this industrial tool with the above standards is subject to the condition that it is used in accordance with the contractually agreed service conditions, the responsibility for which shall rest with the user.

Modifications to the machine/unit or the use of the machine/unit for applications other than the intended service will make this declaration null and void, unless expressly approved in writing by the manufacturer.

Ransbach-Baumbach, May 2002

Dipl.-Ing. Stefan Munsch
Managing Director

1 General



These operating instructions must always be available at the place of use of the hand extruder.

The objective of these operating instructions is to support operators in familiarizing themselves with the hand extruder and in using its functions for the intended service.

The operating instructions provide important information for the safe, workmanlike and economical operation of the hand extruder. Their observance helps avoid danger, minimize repair costs and downtimes, enhance reliability and extend the service life of the hand extruder.

Any person performing work with/on the hand extruder is required to read the operating instructions. Such work includes

- operation,
- maintenance (maintenance, inspection, repair),
- transport.

The hand extruder shall only be installed, operated and maintained by trained personnel.

In addition to the operating instructions and the national and local accident prevention regulations applicable at the place of use, the acknowledged technical rules for safe and proper working practices must be observed.

These operating instructions provide basic information to be observed for operation and maintenance. For this reason, it is imperative that they be read by the specialist personnel/operators prior to placing the hand extruder in service and that they are permanently available at the place of use. Apart from the general safety instructions under chapter "Safety", also the special safety instructions given under the respective sub-sections must be adhered to.



Failure to observe the safety instructions may cause hazards to persons and the environment or damage to the hand extruder.

Moreover, non-observance of the safety instructions may lead to the forfeiture of any damages.

Non-compliance with the safety instructions may in particular involve the following risks:

- failure of important hand extruder functions,
- hazards to persons due to electrical and mechanical impacts including risk of burns
- hazards to the environment due to vapors of hazardous substances,
- risk of fire.

2 Safety

These operating instructions contain important information to be followed for operation and maintenance. For this reason, it is imperative that they be read by the responsible specialist personnel/operators before mounting and starting-up of the hand extruder and that they are permanently available at the place of use.

Operating reliability of the hand extruder presupposes that the instructions under Chapter 1 "General" herein are complied with. In no case must the limit values indicated be violated.

The hand extruders are in conformance with all applicable standards and meet the prescribed limit values with regard to EMC (electromagnetic discharges and interference immunity), provided they are not defective and have not been modified. Nevertheless, they emit electromagnetic fields within the acceptable limits. Electromagnetic fields may interfere with the operation of vital electronic devices (e. g. cardiac pacemakers). Users of cardiac pacemakers should consult their physician before using the machine.

In addition to the operating instructions and the national and local accident prevention regulations applicable at the place of use, the acknowledged technical rules for safe and proper working practices are to be observed.

Apart from the safety instructions contained in this chapter, also the special safety instructions given under the respective subsections must be adhered to.

Any working practices posing a safety risk is prohibited.

Hand Extruder ME-40/MA-40

2.1 Identification of information in the operating instructions

In these operating instructions, safety instructions whose non-observance may cause hazards to persons are identified with



(hazard symbol according to DIN 4844 – W 9),

for general hazards and with



(hazard symbol according to DIN 4844 – W 8).

for electrical hazards.

Safety instructions whose non-observance may cause damage to the hand extruder and its functions are marked with

CAUTION .

Instructions directly indicated on the hand extruder must be strictly followed and kept in a fully readable condition.

2.2 Personnel qualification and training

The operation, maintenance and inspection personnel must have the necessary qualification for the work to be carried out. Functional and technical responsibilities and supervision of the operating personnel must be clearly regulated by the Operator. Where the personnel does not have the necessary skills and knowledge, they must be trained and instructed (e.g. DVS basic welder training in extrusion welding). A detailed instruction into hand extruder operation will be provided by the manufacturer/supplier on request. Furthermore, the Operator has to make sure that the contents of the operating instructions is fully understood by the personnel.

2.3 Risks resulting from non-observance of the safety instructions

Failure to observe the safety instructions may cause hazards to person and the environment as well as damage to the hand extruder.

Moreover, non-compliance with the safety instructions may lead to the forfeiture of any damages.

Non-compliance with the safety instructions may in particular involve the following risks:

- failure of important hand extruder functions,
- hazards to persons due to electrical and mechanical impacts and risk of burns,
- hazards to the environment due to vapors of hazardous substances,
- risk of fire.

2.4 Safe working practices

The safety instructions given in these operating instructions, the applicable national accident prevention regulations and any existing in-company work, operating and safety instructions issued by the Operator are to be followed.

2.5 Safety instructions for operator/user

- Prior to startup, it is to be checked if the mains voltage and frequency correspond with the data indicated on the type tag. The allowable tolerances are $\pm 5\%$ for voltage and/or $\pm 2\%$ for frequency.
- According to VDE°0100 §55, the hand extruder is to be operated via a residual current-operated circuit breaker or an isolating transformer.
- **CAUTION** During hand extruder operation (under load), a voltage of at least 230 V¹⁾ must be available at the mains connector.
- If an extension cable is used, the minimum conductor cross section must be observed. Use extension cables with protective conductors only.

Length [m]	Minimum cross section [mm ²]
up to 19	4,0 ¹⁾
20-50	6,0 ¹⁾

1) for 230 V AC

- Extension cables must be certified for the respective service conditions (e.g. outdoor service) and identified accordingly.

Always handle the connecting cable with care.

- Do not kink the connecting cable.
- Do not place any items on the cable.
- Do not jam or squeeze the connecting cable nor pull it over sharp edges.
- Protect the connecting cable from moisture.

-  Do not touch mains connector or connecting cable with wet hands. Hold the cable always at the connector when plugging or unplugging it.

- **CAUTION** If a power set is used for power supply, the set must have the following rated output:

≥ 4 x rated output of hand extruder

-  Make sure that the hand extruder does not come into contact with water, as this may cause a hazard to persons, damage to the unit or a short-circuit.

- **CAUTION** Never operate the hand extruder without air supply; risk of equipment damage.

When using external air supply, make sure that the air supply line is adequately dimensioned.

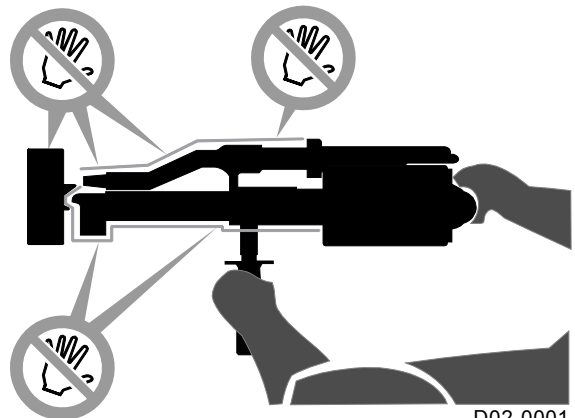
- **CAUTION** The air supplied must be clean, dry and free from oil and water.

-  The hand extruder must not be used in explosion hazard areas or flammable environments.

Make sure to stand on a firm base when operating the hand extruder.

Connecting cable, welding rod and hose for external air supply, if applicable, must be freely movable and must not disturb the operator or third persons in their work.

-  Hold and touch the hand extruder only on the handles provided for this purpose.
 - **Do not** touch bare metal parts (including hot air hood) either with or without gloves. These parts reach temperatures of up to 350°C.
 - Attachments may be damaged by the weight of the hand extruder or may be impaired in their function.
 - Bare metal parts must not come into contact with other items during the work or breaks (e.g. cooling).



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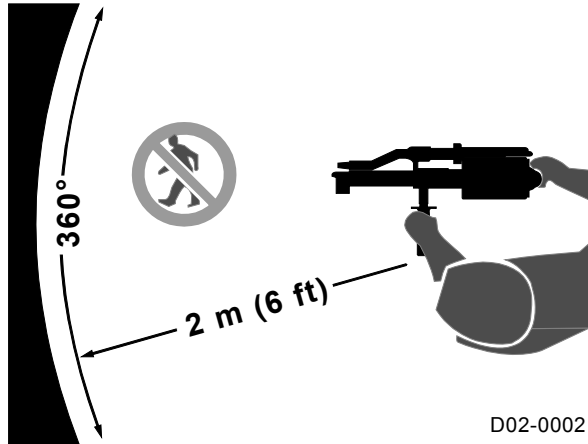
-  **Contact of combustible components with hot bare metal parts poses a fire risk!**

Do not use synthetic gloves!

Hand Extruder ME-40/MA-40

- Do not direct the hot air jet of the hand extruders toward living beings or temperature-sensitive items.

Safety distance: 2 m radius.



- Use suitable personal protection for overhead work (e.g. hard hat, goggles, gloves, protective clothes) to guard against falling items.
- During work breaks and after completion of the work, place the hand extruder on the rests included in the supply.

CAUTION The hot air hood must be re-mounted.



Make sure that the hand extruder is firmly positioned!

Place hand extruder in a dry location.

After finishing work, cool the hand extruder to safe-to-touch temperature using the air supply system.

-  Do not operate, dismantle or carry out modifications on the hand extruder, if
 - connecting cable or mains connector are defective,
 - safety devices are damaged,
 - foreign matter or liquid has penetrated into the hand extruder
 - the unit does not work properly or there are unusual changes in the operating mode.
-  Never allow the hand extruder to come into contact with water, as this may cause a hazard to persons, damage to the equipment as well as a short-circuit.

2.6 Safety instructions for maintenance, inspection and mounting

The Operator is responsible for ensuring that all maintenance, inspection and mounting work is performed by authorised and **qualified personnel** who is thoroughly familiar with the operating instructions.

- As a rule, the hand extruder must be shut down and the mains connector unplugged before carrying out any work on the unit. The shutoff procedure for the hand extruder must be strictly followed.
- Electrical hazards are to be ruled out (for details, see VDE regulations and standards of your local electric utility, for instance).
-  VDE 0701 (IEC 335) prescribes the measurement of the protective conductor resistance, insulation resistance and leakage current after any maintenance work on or modifications of electrical equipment. Furthermore, a visual inspection of the unit and its connecting cable as well as a voltage and power measurement and a function test must be carried out.
- Ensure the safe and environment-friendly disposal of utilities, auxiliaries and replaced parts.
- Re-mount and/or re-activate all safety and protection devices immediately on completion of the work.

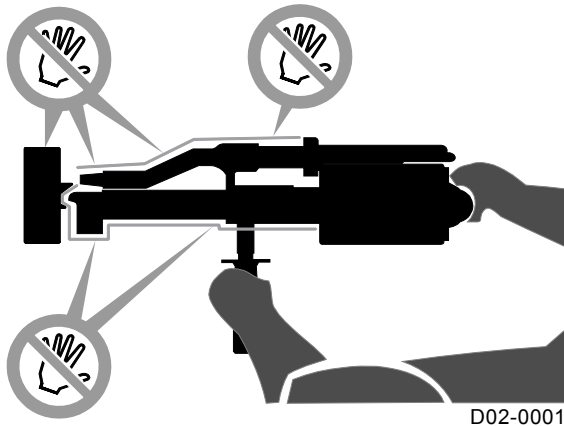
2.7 Unauthorised modifications and spare parts

Modifications or changes to the unit are only permitted after consultation with the manufacturer. In the interest of safety, only original spare parts and accessories authorised by the manufacturer should be used. The use of components other than the original parts may invalidate the liability for any resulting damage.

3 Transport and Storage

3.1 Transport

-  Before transport or storage, the hand extruder must have cooled down to **safe-to-touch temperature**.
-  The hand extruder may only be held and touched on the handles provided for this purpose. Bare metal parts (including the hot air hood) must **not** be touched either with or without gloves before having made sure that they are safe to touch. These parts reach temperatures of up to 350°C during operation.



- Never transport or store the hand extruder in such a way that the attachments are exposed to mechanical loads.

If parts have been removed for transport purposes, mount and fasten them carefully before restarting the unit!

MUNSCH's original packaging or the transport cases offered by MUNSCH are recommended for transport.

3.2 Storage

- Store the hand extruder in a dry and frost-free place.
- Protect the hand extruder from unauthorised access.
- Special preservation is not required.

3.3 Return to MUNSCH

Should it become necessary to return the hand extruder to MUNSCH Kunststoff-Schweißtechnik GmbH, always use the original packaging.

Hand Extruder ME-40/MA-40

4 Product Description

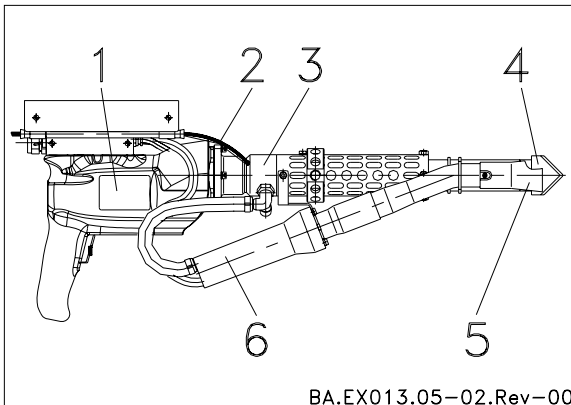
4.1 Allowable service range

The allowable service range of the hand extruder is defined by the data on the type tag and the service range limits indicated in these operating instructions.

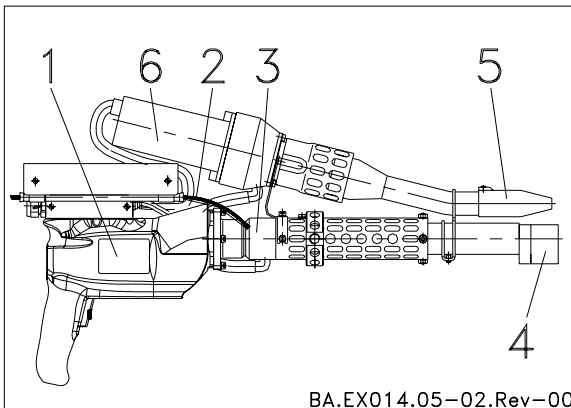
CAUTION Operation of the hand extruder outside the allowable service range stated in these operating instructions is not allowed without the manufacturer's prior approval.

4.2 General Description

Type **ME-40** is a hand extruder with external air supply.



Type **MA-40** is a hand extruder with integrated air supply (Autoair).



Powerbox WX 2PBMU

Powerbox WX 2PBMU is required for the operation of the hand extruder. It consists of a power pack, frequency inverter and an EMC filter. The drive speed and hence, the extrudate output are set at the power box.

The Powerbox has three LEDs:

- red: undervoltage, defective
- yellow: temporary drive overload
- green: normal operation



For both types of hand extruder, the following parameters can be freely selected:

- welding rate,
- hot air temperature,
- temperature and weld material throughput; the throughput can be controlled downwards from the maximum value,

firstly by using 4-mm instead of 5-mm welding rod, **secondly** by reducing the speed with the aid of the rotary button on the Powerbox or the fine-tuning button of the drive. When reducing the speed, care must be taken to maintain the minimum extrudate throughput:

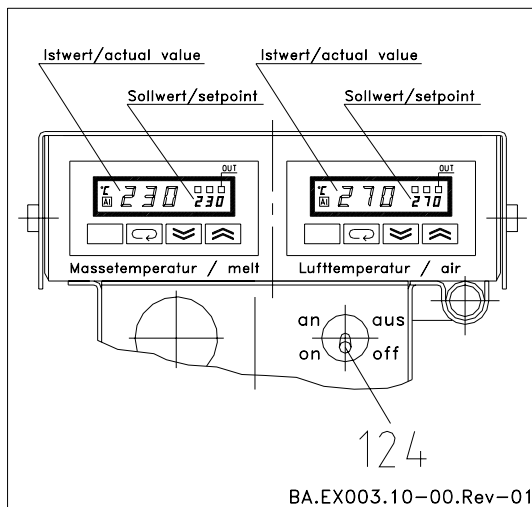
- welding rod $\varnothing$ 4 mm, minimum 1,6 kg/h
- welding rod $\varnothing$ 5 mm, minimum 2,7 kg/h

CAUTION If the speed is too low, there is a risk of drive overheating!

Driven by a powerful electric motor (1), the welding rod (2) is fed into the extruder (3) and granulated by the extruder screw in the process. The screw then forces the granulate into the extruder nozzle, melting it to a homogeneous, completely plastified welding material. As the molten material exits the extruder nozzle, it is moulded to the geometry of the weld to be deposited by a welding shoe (4).

Preheating of the base material to be joined is achieved by preheating nozzle (5) which is supplied from an integrated hot air unit (6). Air is either supplied from an external compressor or an integrated blower.

Welding material and preheating air temperatures are controlled separately. The setpoints and actual values are displayed concurrently.



For the drive to be released for starting, the weld material and preheating air temperatures must be higher than the respective start-up temperatures.

The temperature-controlled start interlock prevents drive starting, if there is still unmolten weld material in the extruder, thus forestalling damage to the unit.

As the output rate is variable, weld thickness and preheating time can be matched with each other.

5 Startup and Shutoff

5.1 General

In addition to the operating instructions and the national and local accident prevention regulations applicable at the place of use, the acknowledged technical rules for safe and proper working practices must be observed.

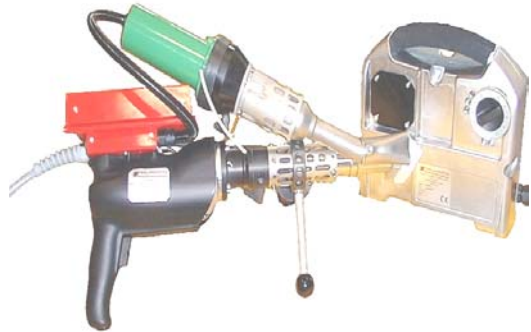
Any working practices posing a safety risk are prohibited.

Before beginning the startup/shutoff procedure, the chapter "Safety" should be carefully read.

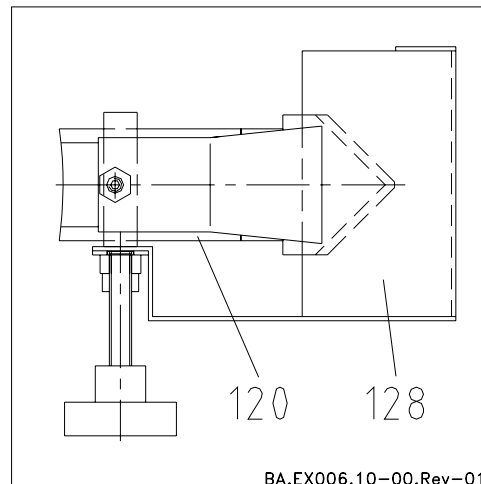
Only trained and qualified personnel shall be assigned to the operation of the hand extruder.

5.2 Preparation

- Place hand extruder and powerbox on a firm support and secure it against tilting over as shown below.



- Mount hot air hood (128) on the heating cartridge (120) of the hand extruder.



- Position handle**
Loosen handle (55) and bring it to ideal working position by pushing it back and forth. The handles of MA-40 and ME-40 hand extruders can be swivelled to the right or left as appropriate for use by right-handed and left-handed persons. (see sectional drawings on pages 17, 22 and 25).
- Only for ME-40 hand extruder with external air supply:**
Connect hand extruder to external air supply; minimum hose diameter of 1/2", for connection to hand extruder (21.2); minimum air rate 300 l/min at 0.4 bar.

CAUTION The supply air must be clean, dry and free from oil and water.

Do not connect external air supply to the MA-40 hand extruder with integrated air supply.

Hand Extruder ME-40/MA-40

- Mount welding shoe
 - Select the welding shoe required for the specific weld geometry or machine a welding shoe blank to the required geometry.
 - Observe regulation DVS°2207 Part°4 for machining welding shoe blanks.
 - Mount welding shoe on the hand extruder in the position required for welding.
Observe welding direction!
Tighten set screw (25).

- Mount preheating nozzle on extruder
 - Select the preheating nozzle (4) for the specific weld type and mount it on the extruder
 - Observe spacing $A = 5 \text{ mm}$.
 - Tighten preheating nozzle by means of set screw (25.1).

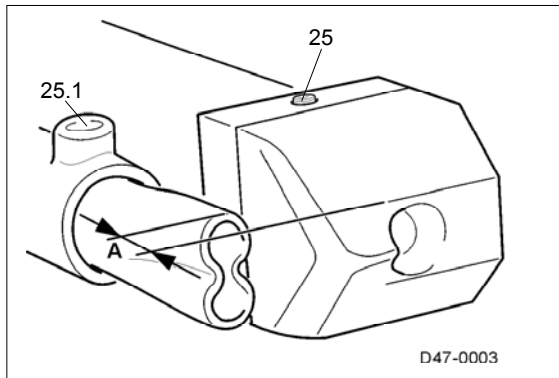
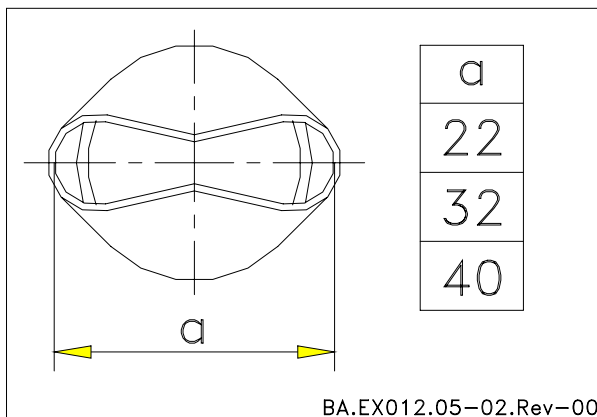


Table: Preheating nozzle



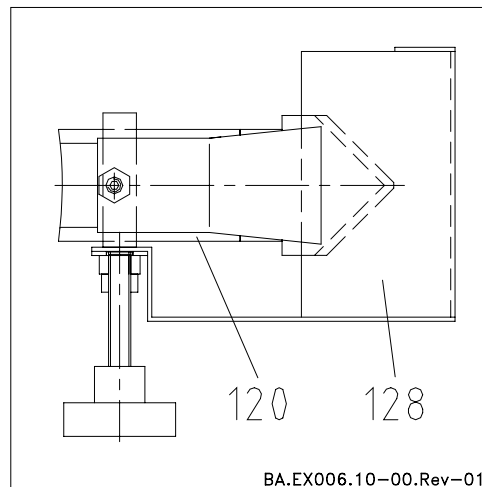
Make sure that the preheating nozzle provides intense and uniform heating (melting) of the base material over the entire weld width – at minimum hot air temperature.

5.3 Starting the hand extruder



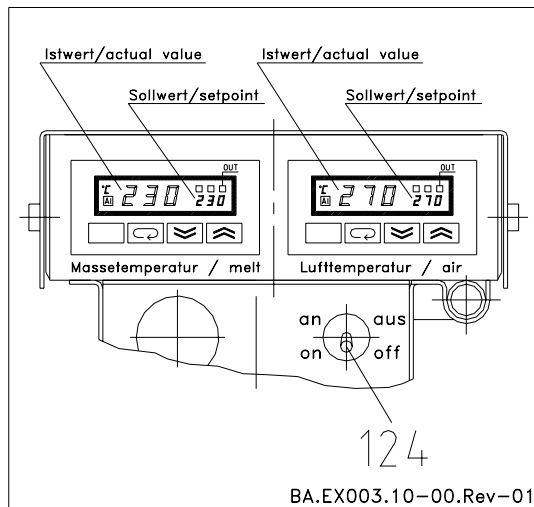
Observe chapter "Safety".

- **CAUTION** The hand extruder must not be operated without air supply. Failure to observe this may cause severe damage to the unit.
- **CAUTION** Before plugging in the mains connector, check that the drive is not set to continuous operation.
- **CAUTION** The hot air hood (128) must be mounted on the heating cartridge (120) of the hand extruder.



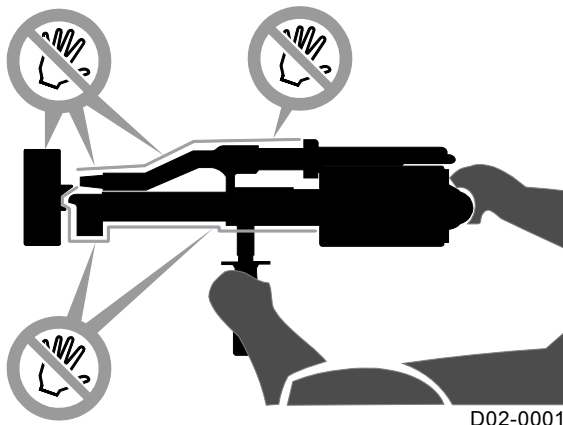
- **CAUTION** Start external air supply for hand extruder ME-40.
- **CAUTION** Connect the cable between the Powerbox and the hand extruder.
- **CAUTION** Plug in mains connector.
- **CAUTION** With the MA-40 hand extruder with integrated air supply, the blower must start automatically.

- **CAUTION** Once air exits preheating nozzle (4), the heating systems (air/material temperature) may be switched on via switch (124).



- For operation of the temperature controller, see sub-section 5.5 "Adjust temperature controller". For temperature values, see page 15 "Temperatures for ME-40/MA-40".
- **The hand extruder reaches its operating temperature after approx. 15-20 minutes.**
- Set the maximum speed on the drive and preset the speed on the power box.

-  The hand extruder may now only be held and touched on the handles.



- **CAUTION** The start switch of the drive unit may only be operated, when the operating temperature has been reached. Otherwise the hand extruder may be damaged by solidified weld material present in the extruder. The hand extruder is equipped with a temperature-

controlled interlock which prevents drive starting before the melting temperature is reached. Apart from the temperature-controlled start interlock, the brushless drive is equipped with a torque monitor which prevents hand extruder starting as long as the operating temperature is not attained or the extrudate has not molten down. For temperature values, see page 15 "Temperatures for ME-40/MA-40".

5.4 Welding with the hand extruder



Observe chapter "Safety" and data sheet.

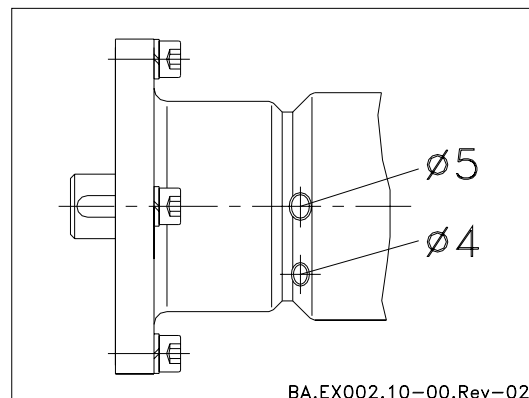
General

Welding is to be carried out in accordance with the regulations of the German Association for Welding Technology ("Deutscher Verband für Schweißtechnik DVS").

The material to be welded and the welding rod must be dry and clean.

5.4.1 Introducing the welding rod

- **CAUTION** The hand extruder is provided with two bores for introducing the welding rod. Make sure to introduce only one welding rod at a time, **either a 4 mm rod or a 5 mm rod. Never introduce two rods at a time into the rod bore.**



5.4.2 Replacement and ageing of welding rod

- If the welding rod is replaced, make sure that no old rod is still present in the hand extruder.
- For this purpose, operate the preheated hand extruder with the new rod, until clean, new material discharges.

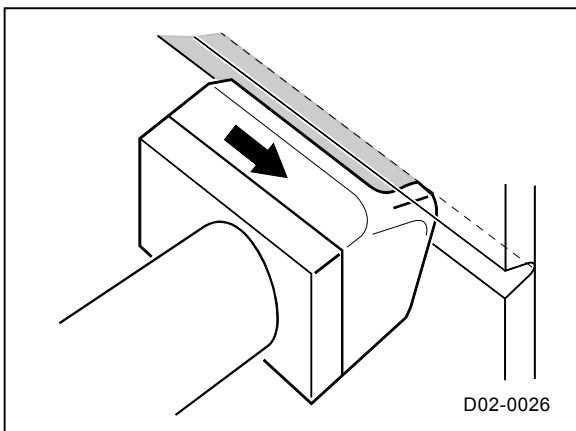
Hand Extruder ME-40/MA-40

- The DVS regulations also recommend this measure for hand extruders which have been out of service for prolonged periods while being filled with welding rod.

-  Ensure safe and environment-friendly disposal of any wastes generated!

5.4.3 Welding direction/rate

- Under the pressure of the discharging weld material, the welding shoe (and the hand extruder) are moved in welding direction.
- See DVS regulations for welding rate.



5.4.4 Interruption of work

-  Observe chapter "Safety".
Do not leave the hand extruder unattended.
Maintain the air supply.
- When interrupting the welding work, switch off the drive unit and deposit the hand extruder as shown below.



5.4.5 Shutoff



Observe chapter "Safety".

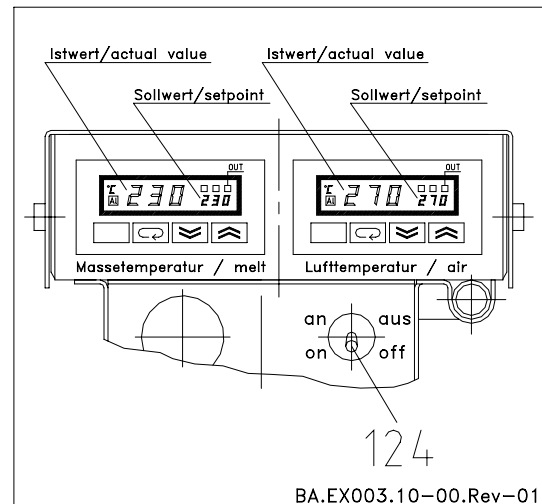
- After finishing the welding work, switch off the drive unit and deposit the hand extruder as shown (for illustration, see subsection 5.4.4).



Do not leave the hand extruder unattended.

5.4.5.1 Hand extruder with integrated air supply, Type MA-40

- Switch off heating systems via switch (124).



-  Maintain the air supply after switching off the hand extruder, until the unit has completely cooled down!
- Unplug mains connector.



Never use water or another coolant to accelerate the cooling process!

5.4.5.2 Hand extruder with external air supply, Type ME-40

- Switch off heating systems via switch (124).
- Unplug mains connector of hand extruder.
-  Maintain the air supply after switching off the hand extruder, until the unit has completely cooled down!

 **Never use water or another coolant to accelerate the cooling process!**

5.4.6 Transport/storage

Observe instructions under chapter "Transport/storage".

 **Never use water or another coolant to accelerate the cooling process!**

5.5 Adjust temperature controller

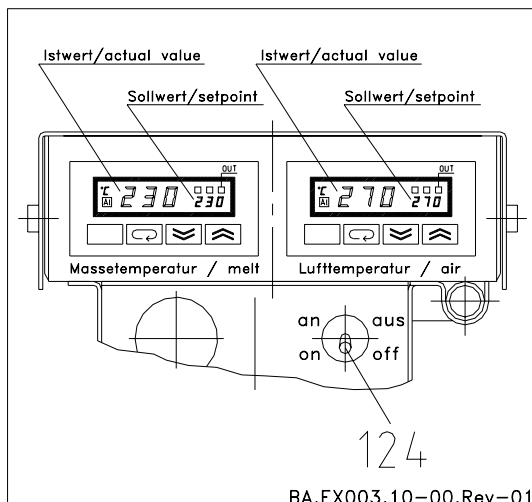
The weld material and air temperatures are adjusted at the manufacturer's workshops as shown in the temperature table for the ME-40 and MA-40 hand extruders.

Temperatures for ME-40/MA-40

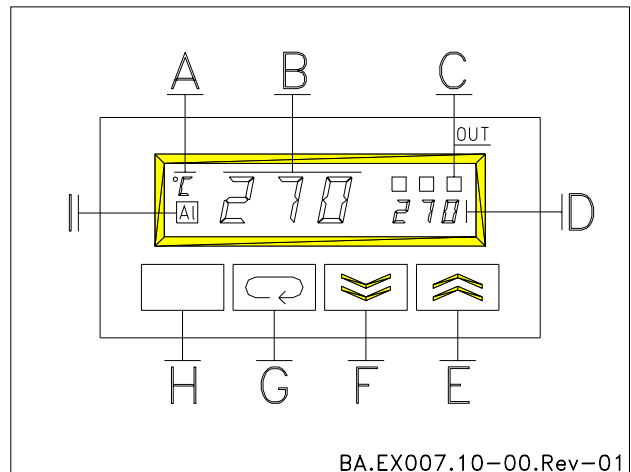
Material	Material temperature	Air temperature
PP	200 – 240 °C	250 – 300 °C
PE	200 – 240 °C	250 – 300 °C

If other temperatures are required, they can be set with the aid of the temperature controller.

5.5.1 Adjust temperature controller



Operating panel



- A Temperature display [°C] or [°F]
- B Actual value display (red)
- C Display for controller output „OUT“ (heating on)
- D Setpoint display (green)
- E Key „Up“ (temperature setpoint increases)
- F Key „Down“ (temperature setpoint is reduced)
- G **CAUTION** controller lock (do not press key)
- H **CAUTION** controller lock (do not press key)
- I lights up if the start-up temperature is reached

Display for start-up temperature (AL)

This display lights up when the start release temperature is reached. The start release temperature has been set to a level of 30°C below the setpoint at the manufacturer's works. The drive can be started, once the setpoint temperatures for air and weld material have been reached.

6 Maintenance/Inspection



Pull mains connector before carrying out maintenance and repair work on the unit.

Maintenance and repair work on electrical tools may only be carried out by qualified electricians.



The hand extruder together with the hot air hood must have cooled down to safe-to-touch temperature.

Observe the instructions under chapter "Safety".

Maintenance and repair work should only be carried out by qualified personnel or by our service staff.

To ensure the proper function of the hand extruder over its entire service life for its intended service, we recommend

- to have all maintenance, inspection and mounting work carried out by authorised and qualified personnel who are thoroughly familiar with the operating instructions,
- to always shut down the unit before carrying out any work on it,
- to mount and activate all safety and protection devices immediately after completion of the work.

During maintenance and repair work, make sure that the hand extruder and its individual components are firmly positioned.

In addition to the operating instructions and the national and local accident prevention regulations applicable at the place of use, the acknowledged technical rules for safe and proper working practices are to be observed.

Any working practices posing a safety risk are prohibited.



Activities outside the above scope may only be performed at the manufacturer's workshop.

6.1 Maintenance/Inspection of hand extruder ME-40/MA-40

- **CAUTION** After approx. 500 operating hours, the hand extruder including drive unit must be thoroughly cleaned and inspected. This work may only be carried out at the manufacturer's workshops.
- **CAUTION** Cables, switches, plug-in connections must be inspected by qualified staff every three months (regulation to VBG4); the inspection results must be documented.
- Only original spare parts should be used.

6.2 Dismantling

Prior to dismantling the hand extruder, pull the mains connector.

The hand extruder must be at ambient temperature.

Damaged mains connection cables and/or interconnecting cables (142) must be replaced. "Mended" lines pose a hazard to life and limb. Cable replacement is to be carried out by qualified electricians only.

The safety precautions described under chapters "Safety" and "Malfunctions, Causes and Remedies" must be adhered to.

For dismantling and assembly, the associated overall drawing must be strictly observed. .

6.2.1 ME-40 hand extruder with external air supply

Overall drawing No. BA.ME-40B.DR.09-02.Rev-01

Parts list ME-40-B (K02746)

Exploded view of air heater

Parts list of air heater

6.2.2 MA-40 hand extruder with integrated air supply

Overall drawing No. BA.MA-40B.ER.09-02.Rev-01

Parts list MA-40-B (K02747)

Overall drawing No. BA.MA-40D.EO.09-02.Rev-01

Parts list MA-40-D (K02748)

Exploded view of hot air blower

Parts list of hot air blower

Hand Extruder ME-40/MA-40

Parts list of ME-40-B hand extruder, 230 Volts K02746

Item-No.:	Qty.	Ident-No.:	Designation:	
2	1	K02859	Nozzle	48 MA/E-40
2a	1	K02576	Compression nozzle	MA/E-40
4	1	K02570	Preheating nozzle 22G	MA/E-40
4	1	K02572	Preheating nozzle 32G	MA/E-40
4	1	K02143	Preheating nozzle 40G	MA/E-60
5	1	K02589	Extruder screw	MA/E-40
15	1	K00537	Axial ball bearing	51105
20	1	K02781	Drive WX2Mu	100983
21.2	1	K00558	Air connection m. joint	3/8"
21.3	1	K00554	Air connection	threaded elbow 3/8"/12
22	2	K00539	Ear clip	d 20
25	1	K00542	Grub screw	M 6 x 10
25.1	3	K02200	Grub screw	M 6 x 6
25.2	1	K02059	Grub screw	M 6 x 10
25.3	4	K02201	Grub screw	M 6 x 12
25.4	2	K02200	Grub screw	M 6 x 6
30	1	K00536	Circlip	I 42 x 1,75
51	2	K00664	Screw connection	PG 9
54	1	K01484	Screwed cable guide	PG 16
55	1	K02547	Handle	M 14/6,5
61	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
65	1	K02836	Diode for ME-60,40,25,-H	230V / 2000 W
66	1	K00713	Air hose	9 x 3
76	1	K02279	Holding angle for casing	MA/E-60 + GMA/E-50 230/400V
79	4	K02058	Hexagonal nut	M 6
81	1	K02539	Hot air guide	25° ME-40
82	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
86	1	K02591	Extruder body	MA/E-40
110	1	K02636	Holder	45 MA/E-40
112	1	K02524	Holder	DR ME-40
114	1	K02150	Ring for handle	MA/E-60
115	1	K02520	Touch guard	MA/E-40
117	1	K02532	Distance ring	25/5 MA/E-60
120	1	K02551	Heating cartridge	30x40x170 MA/E-40
121.1	4	K02055	Spring washer	A 5
121.2	1	K02055	Spring washer	A 5
122	4	K02052	Socket head cap screw	M 5 x 16
122.1	4	K02053	Socket head cap screw	M 5 x 10
123	1	K01989	Ball bearing	61905-2RS1
124	1	K02753	Switch	MA/E-60

Parts list of ME-40-B hand extruder, 230 Volts
K02746

Item-No.:	Qty.	Ident-No.:	Designation:	
125	4	K00684	Slotted cheese head screw	M 4 x 6
125.1	1	K02202	Slotted cheese head screw	M 5 x 6
125.2	4	K00684	Slotted cheese head screw	M 4 x 6
126.1	1	K02073	Solid state relais	G3NE-210T 12 VDC
127	1	K00625	Key	5 x 5 x 14
129	1	K02278	Casing cover	S/R, MA/E-60+GMA/E-50 230/400V
130	1	K02280	Casing - lower section	- MA/E-60 230/400V
132	1	K02351	Extruder rest	MA/E-60
137	1	K02519	Feather shim - for spring ring	30 x 42 x 1
140	1	K02834	Main electric connection board	MA/E-60,40,25
141	4	K02653	Toothed washer M 5	d 1 = 5,3 A2
142	1	K02775	Connecting cable (powerbox - drive)	WX2PBMu-WX2Mu
148	1	K02964	Support ring	MA/E-40 u. 60
149	1	K02966	Joint ring	MA/E-40 u. 60

Hand Extruder ME-40/MA-40

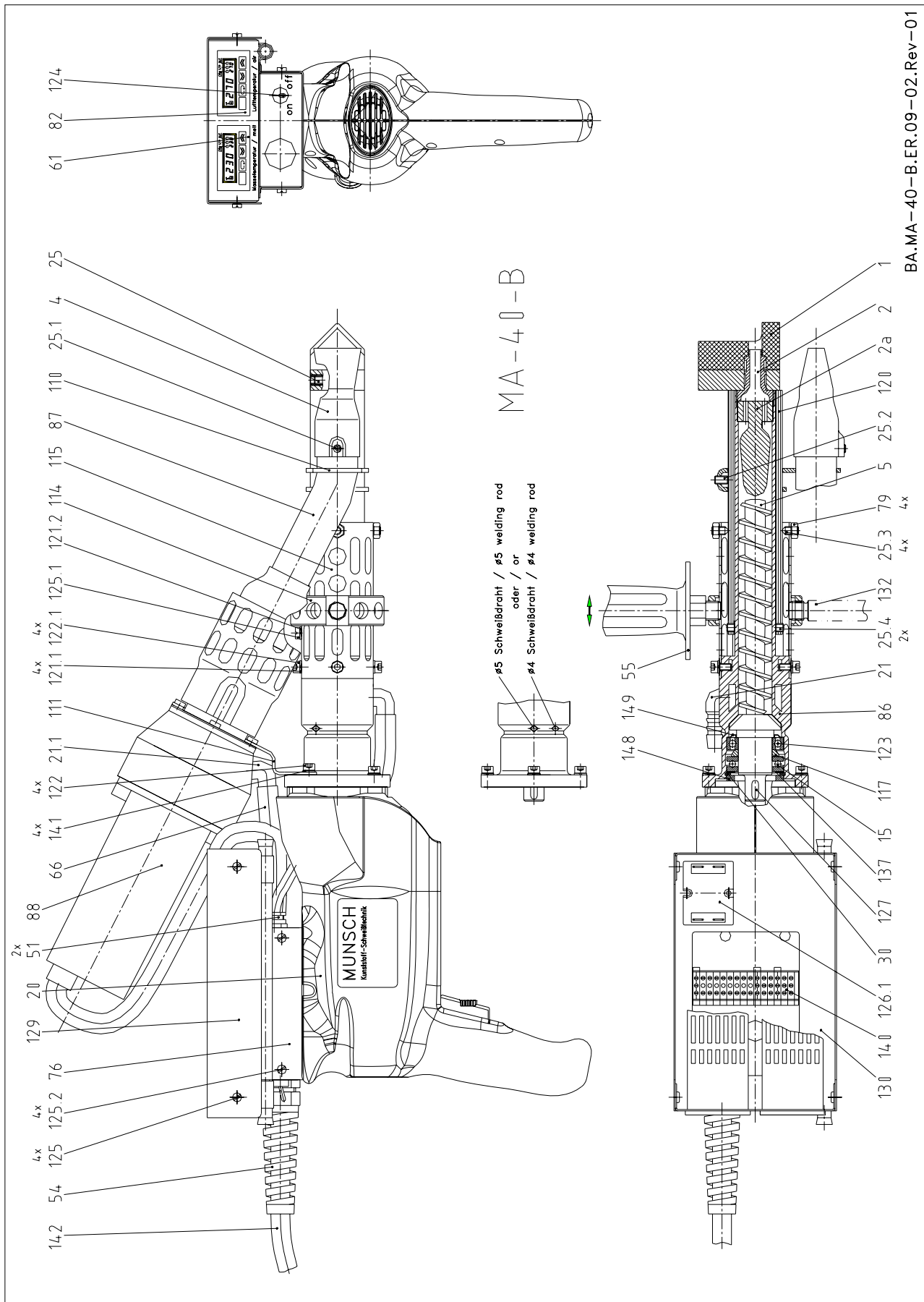
Exploded view of air heater for ME-40 hand extruder

Drawing in preparation

Parts list of air heater for ME-40 hand extruder

Spare parts list in preparation

Overall drawing of MA-40-B hand extruder with integrated air supply



Parts list of MA-40-B hand extruder, 230 Volts
K02747

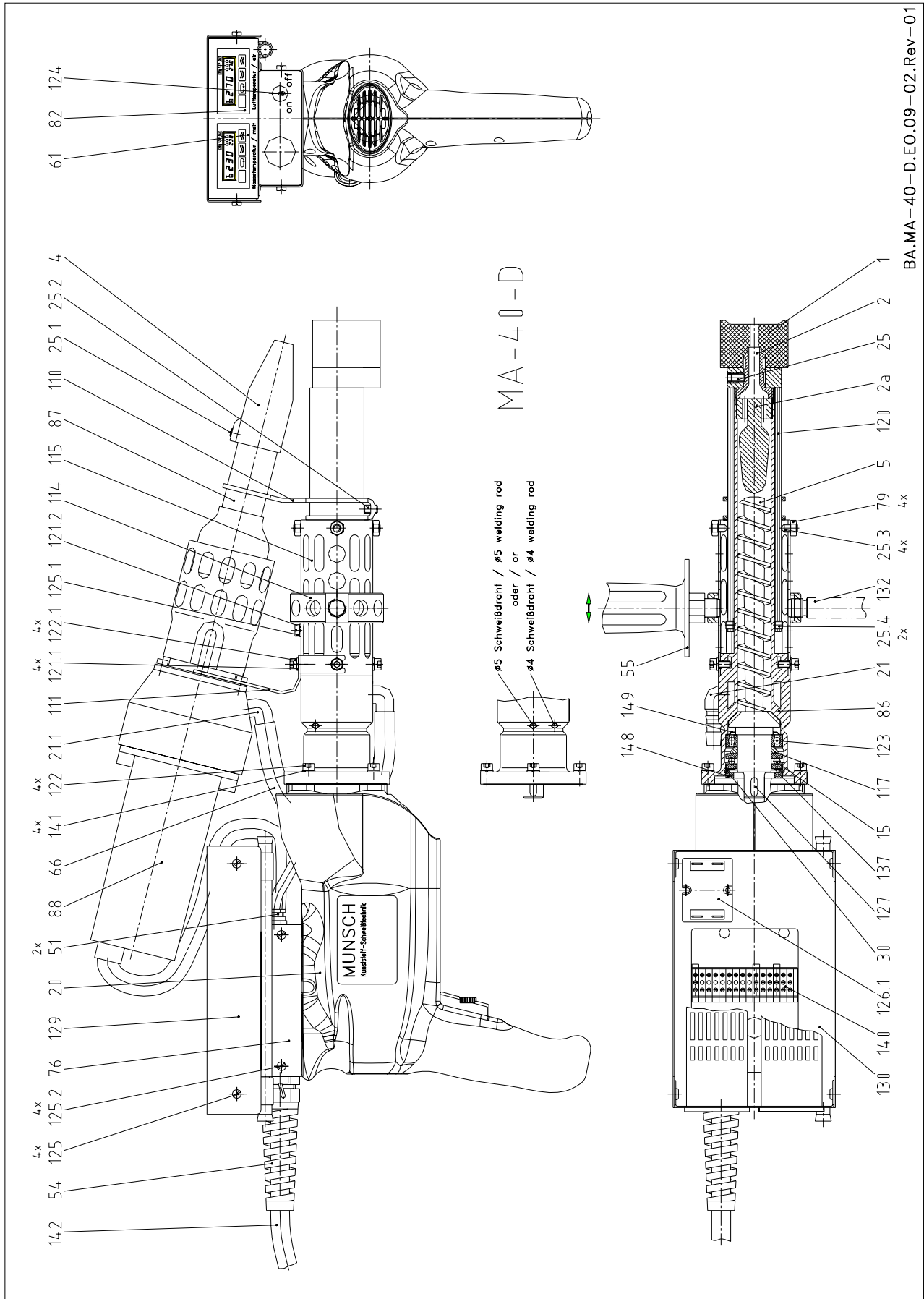
Item-No.:	Qty.	Ident-No.:	Designation::	
2	1	K02859	Nozzle	48 MA/E-40
2a	1	K02576	Compression nozzle	MA/E-40
4	1	K02570	Preheating nozzle 22G	MA/E-40
4	1	K02572	Preheating nozzle 32G	MA/E-40
4	1	K02143	Preheating nozzle 40G	MA/E-60
5	1	K02589	Extruder screw	MA/E-40
15	1	K00537	Axial ball bearing	51105
20	1	K02781	Drive WX2Mu	100983
21	1	K02203	Air connection	angle 1/4"
21.1	1	K00725	Air connection	angle 1/4"
25	1	K00542	Grub screw	M 6 x 10
25.1	3	K02200	Grub screw	M 6 x 6
25.2	1	K02059	Grub screw	M 6 x 10
25.3	4	K02201	Grub screw	M 6 x 12
25.4	2	K02200	Grub screw	M 6 x 6
30	1	K00536	Circlip	I 42 x 1,75
51	2	K00664	Screw connection	PG 9
54	1	K01484	Screwed cable guide	PG 16
55	1	K02547	Handle	M 14/6,5
61	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
66	1	K00713	Air hose	9 x 3
76	1	K02279	Holding angle for casing	MA/E-60 + GMA/E-50 230/400V
79	4	K02058	Hexagonal nut	M 6
82	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
86	1	K02591	Extruder body	MA/E-40
87	1	K02540	Integrated air-unit mounting	27° MA-40
88	1	K02206	Hot-air blower	Electron o.E.-230 Volt,2200 W
110	1	K02636	Holder	45 MA/E-40
111	1	K02525	Holder	ER MA-40
114	1	K02150	Ring for handle	MA/E-60
115	1	K02520	Touch guard	MA/E-40
117	1	K02532	Distance ring	25/5 MA/E-60
120	1	K02551	Heating cartridge	30x40x170 MA/E-40
121.1	4	K02055	Spring washer	A 5
121.2	1	K02055	Spring washer	A 5
122	4	K02052	Socket head cap screw	M 5 x 16
122.1	4	K02053	Socket head cap screw	M 5 x 10
123	1	K01989	Ball bearing	61905-2RS1
124	1	K02753	Switch	MA/E-60

Hand Extruder ME-40/MA-40

Parts list of MA-40-B hand extruder, 230 Volts K02747

Item-No.:	Qty.	Ident-No.:	Designation::	
125	4	K00684	Slotted cheese head screw	M 4 x 6
125.1	1	K02202	Slotted cheese head screw	M 5 x 6
125.2	4	K00684	Slotted cheese head screw	M 4 x 6
126.1	1	K02073	Solid state relais	G3NE-210T 12 VDC
127	1	K00625	Key	5 x 5 x 14
129	1	K02278	Casing cover	S/R, MA/E-60+GMA/E-50 230/400V
130	1	K02280	Casing - lower section	- MA/E-60 230/400V
132	1	K02351	Extruder rest	MA/E-60
137	1	K02519	Feather shim - for spring ring	30 x 42 x 1
140	1	K02834	Main electric connection board	MA/E-60,40,25
141	4	K02653	Toothed washer M 5	d 1 = 5,3 A2
142	1	K02775	Connecting cable (powerbox - drive)	WX2PBMu-WX2Mu
148	1	K02964	Support ring	MA/E-40 u. 60
149	1	K02966	Joint ring	MA/E-40 u. 60

Overall drawing of MA-40-D hand extruder with integrated air supply



BA.MA-40-D.EO.09-02.Rev-01

Hand Extruder ME-40/MA-40

Parts list of MA-40-D hand extruder, 230 Volts K02748

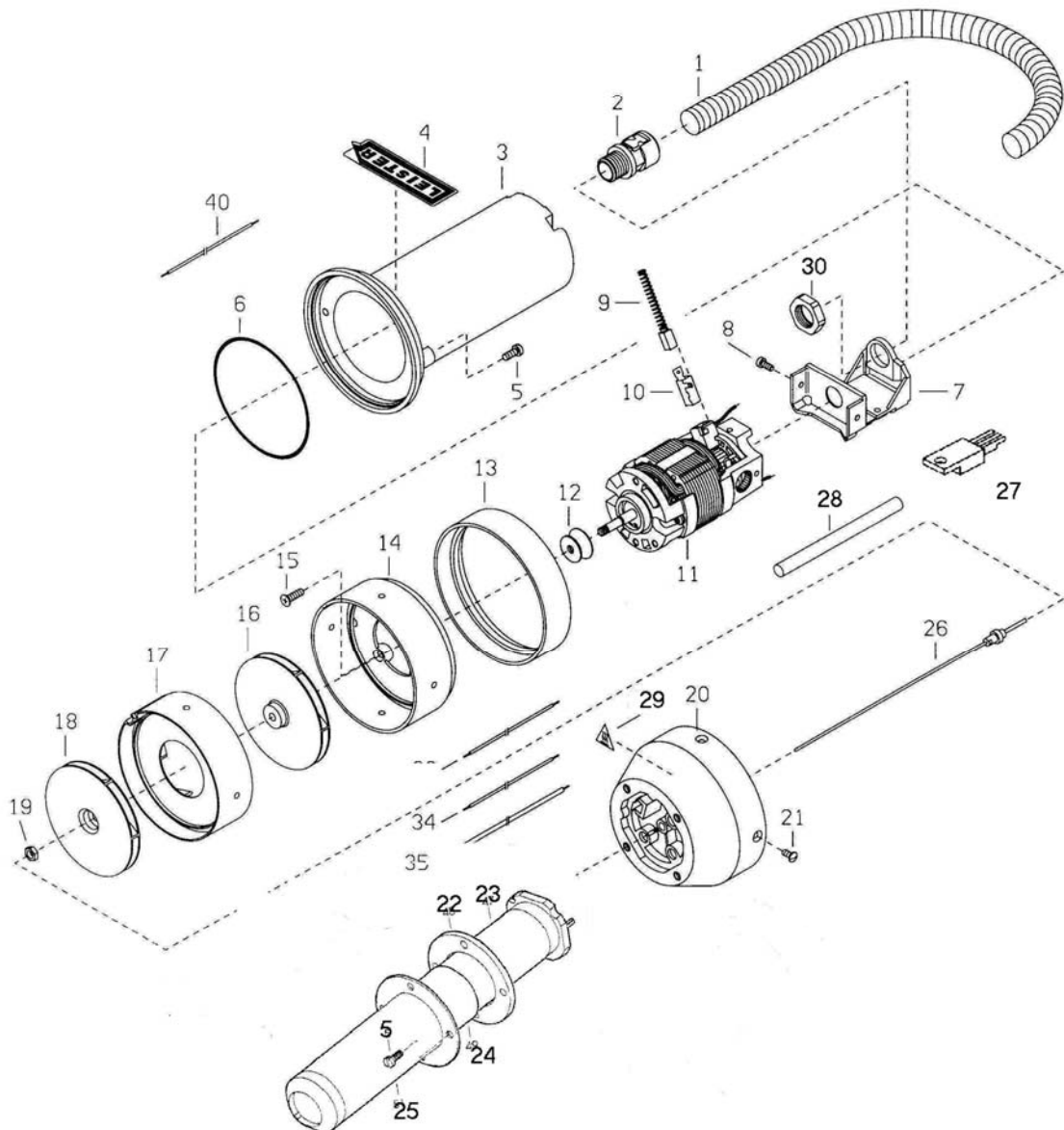
Item-No.:	Qty.	Ident-No.:	Designation::	
2	1	K02859	Nozzle	48 MA/E-40
2a	1	K02576	Compression nozzle	MA/E-40
4	1	K02570	Preheating nozzle 22G	MA/E-40
4	1	K02572	Preheating nozzle 32G	MA/E-40
4	1	K02143	Preheating nozzle 40G	MA/E-60
5	1	K02589	Extruder screw	MA/E-40
15	1	K00537	Axial ball bearing	51105
20	1	K02781	Drive WX2Mu	100983
21	1	K02203	Air connection	angle 1/4"
21.1	1	K00725	Air connection	angle 1/4"
25	1	K00542	Grub screw	M 6 x 10
25.1	3	K02200	Grub screw	M 6 x 6
25.2	1	K02059	Grub screw	M 6 x 10
25.3	4	K02201	Grub screw	M 6 x 12
25.4	2	K02200	Grub screw	M 6 x 6
30	1	K00536	Circlip	I 42 x 1,75
51	2	K00664	Screw connection	PG 9
54	1	K01484	Screwed cable guide	PG 16
55	1	K02547	Handle	M 14/6,5
61	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
66	1	K00713	Air hose	9 x 3
76	1	K02279	Holding angle for casing	MA/E-60 + GMA/E-50 230/400V
79	4	K02058	Hexagonal nut	M 6
82	1	K02187	Temperature control	E5GN-Q1TC 100-240 VAC
86	1	K02591	Extruder body	MA/E-40
87	1	K02541	Integrated air-unit mounting	75 MA-40
88	1	K02206	Hot-air blower	Electron o.E.-230 Volt,2200 W
110	1	K02521	Holder	14° MA-40
111	1	K02046	Holder	14° MA-60
114	1	K02150	Ring for handle	MA/E-60
115	1	K02520	Touch guard	MA/E-40
117	1	K02532	Distance ring	25/5 MA/E-60
120	1	K02551	Heating cartridge	30x40x170 MA/E-40
121.1	4	K02055	Spring washer	A 5
121.2	1	K02055	Spring washer	A 5
122	4	K02052	Socket head cap screw	M 5 x 16
122.1	4	K02053	Socket head cap screw	M 5 x 10
123	1	K01989	Ball bearing	61905-2RS1
124	1	K02753	Switch	MA/E-60

Parts list of MA-40-D hand extruder, 230 Volts
K02748

Item-No.:	Qty.	Ident-No.:	Designation::	
125	4	K00684	Slotted cheese head screw	M 4 x 6
125.1	1	K02202	Slotted cheese head screw	M 5 x 6
125.2	4	K00684	Slotted cheese head screw	M 4 x 6
126.1	1	K02073	Solid state relais	G3NE-210T 12 VDC
127	1	K00625	Key	5 x 5 x 14
129	1	K02278	Casing cover	S/R, MA/E-60+GMA/E-50 230/400V
130	1	K02280	Casing - lower section	- MA/E-60 230/400V
132	1	K02351	Extruder rest	MA/E-60
137	1	K02519	Feather shim - for spring ring	30 x 42 x 1
140	1	K02834	Main electric connection board	MA/E-60,40,25
141	4	K02653	Toothed washer M 5	d 1 = 5,3 A2
142	1	K02775	Connecting cable (powerbox - drive)	WX2PBMu-WX2Mu
148	1	K02964	Support ring	MA/E-40 u. 60
149	1	K02966	Joint ring	MA/E-40 u. 60

Hand Extruder ME-40/MA-40

Exploded view of hot air blower for MA-40-B/D hand extruder



	Electron. Artikel-Nr. 113.091	
	Munsch	

Parts list of hot air blower for MA-40-B/D hand extruder

Item	Qty.	Art. No.	Designation	
1	1	107.753	Corrugated conduit, black	450mm
2	1	104.271	Hose coupling DN 12	PG 9 straight
3	1	111.824	Handle	
4	1	100.032	LEISTER company logo	75 x 22
5	6	100.299	Oval head screw M4 x 10	
6	1	101.237	O-ring $\varnothing$ 75.92 x $\varnothing$ 1.78	
7	1	111.743	Clamp strap	
8	2	101.243	Self-tapping oval head screw	M3.5x8
9	2	101.250	Carbon 5 x 6 x 16	
10	2	101.249	Carbon brush guide	
11	1	106.394	Motor 54/25 230V	
12	1	101.251	Steel sleeve	
13	1	101.252	Rubber ring without cam	
14	1	104.064	Turbine housing, lower part	complete
15	3	100.284	Self-tapping oval head screw	M4 x 14
16	1	107.591	Turbine	
17	1	107.762	Distributor, complete	with square nuts
18	1	107.592	Turbine	
19	1	100.287	Hexagon nut M5	
20	1	107.763	Turbine housing, upper part	complete
21	4	101.269	Oval head self-tapping screw M3.5 x 8	
22	1	101.270	Gasket 70x48x4mm	
23	1	101.776	Heating element, type 32	230V/2200W
24	1	101.760	Mica tube	
25	1	105.385	Pipe adapter with protective tube	
26	1	100.288	Thermocouple	
27	1	8.7	Relay	
28	1	107.765	Flexible insulating tube $\varnothing$ 7 x 0.7 x 90	white
29	1	100.528	Warning sign "hot surface"	
30	1	104.272	Counter nut PA PG9, black	

Hand Extruder ME-40/MA-40

7 Malfunctions , Causes and Remedies

7.1 Trouble-shooting

The following table lists potential malfunctions of the hand extruder together with likely causes and their remedies (fault diagnosis chart).

If malfunctions occur which are not covered here or which cannot be traced back to the cause indicated, please contact MUNSCH Kunststoff-Schweißtechnik GmbH.

Malfunction	Fault No.
Drive motor does not start	5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 23, 25
Drive motor switches off	5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 23, 25
No welding rod feed	1, 16, 17, 20, 26
No weld material conveyed out of the welding shoe	1, 16, 26
Weld material feed rate decreases during operation	1, 14, 16
No compressed air	13
Failure of integrated air supply	22, 5
No hot air	2, 3, 4, 5, 18, 22, 24
Hot air temperature below setpoint	2, 3, 4, 8, 10, 18, 22, 14
Weld material temperature below setpoint	2, 3, 9, 11, 14, 24
Extruder remains cold	2, 3, 12, 22, 24
Temperature above the preset range	2, 3, 18, 19
Temperature display on the controller: 5.err	27
Temperature display on the controller: e.111	28
Temperature display on the controller: □□□□	29
Temperature display on the controller: □□□□	30
Variations from setpoint temperature	3, 13, 19

7.2 Fault diagnosis

Fault No.	Possible causes	Remedies
1	Welding rod diameter smaller or too small	If necessary, use a larger welding rod diameter.
2	Temperatur sensor defective	¹⁾
3	Temperatur controller defective	¹⁾
4	Air throughput too high	Reduce air supply to the specified rate. ³⁾
5	Cable connections defective	Check cable connections. ¹⁾
6	External air supply not connected ³⁾	Connect external air supply.
7	External air supply out of function ³⁾	Switch on external air supply. Check the external air supply system for malfunctions using the separate manual, or have it checked.
8	Hot air temperature below the start release temperature.	Allow the hand extruder to heat up. Air flow too high → lower air flow.

1) Consult MUNSCH Kunststoff-Schweißtechnik GmbH

2) Only MA-40

3) Only ME-40

Fault No.	Possible causes	Remedies
9	Welding deposit temperature below the start release temperature	Allow the hand extruder to heat up.
10	Preheating time for hot air too short	Allow the hand extruder to heat up
11	Preheating time for weld material too short	Allow the hand extruder to heat up.
12	Heating cartridge defective	¹⁾
13	Air supply not constant	- With external air supply: - Check air supply³⁾ - With integrated air supply: ¹⁾
14	Incorrect rated voltage	Rated voltage > permissible voltage Check mains voltage Rated voltage < permissible voltage Check mains voltage ¹⁾
15	Extension cable heats up	- Unroll the cable reel - Check cable cross section (see chapter "Safety")
16	Extruder nozzle blocked with foreign matter	Clean extruder.  Extruder nozzle – left-hand thread
17	Defect in the drive unit	¹⁾
18	Defect in the electronic control	¹⁾
19	Controller programming incorrect	¹⁾
20	Welding rod feed	Remove welding rod  Observe the instructions under chapter "Maintenance"! Observe the instructions for extruder operation!
21	Powerbox fault	¹⁾
22	Hot air unit defective	¹⁾
23	No mains voltage	Check voltage supply.
24	Heating switched off	Operate switch 124
25	Yellow LED on Powerbox lights up	Allow hand extruder to heat up
26	Rod feed bores mixed up	Do not introduce Ø 4 mm rod into 5-mm feed bore!
27	Input error „s.err“ at controller	Check inputs for incorrect wiring, cable discontinuity, input type and short-circuits.
28	Memory error „e111“ at controller	First switch voltage off and then on. If the display does not change, the unit needs to be repaired. If the display is correct, an external interference affecting the controller may be the cause. Check for external interferences.

1) Consult MUNSCH Kunststoff-Schweißtechnik GmbH

2) Only MA-40

3) Only ME-40

Hand Extruder ME-40/MA-40

Fault No.	Possible causes	Remedies
29	Actual value out of range	Although this is no fault, the message is displayed, if the out-of-range actual value is smaller than the display range. - Smaller than “-1999“ □□□□
30	Actual value out of range	Although this is no fault, the message is displayed, if the out-of-range actual value is greater than the display range. - Greater than “9999“ □□□□

- 1) Consult MUNSCH Kunststoff-Schweißtechnik GmbH
- 2) Only MA-40
- 3) Only ME-40

8 Technical Data

Type designation	ME-40	MA-40
Welding materials	PP, PE	PP, PE
Welding rates, approx.	Ø 4 mm: 2.5 kg/h PP; 2.5 kg/h PE Ø 5 mm: 4.0 kg/h PP; 4.0 kg/h PE	Ø 4 mm: 2.5 kg/h PP; 2.5 kg/h PE Ø 5 mm: 4.0 kg/h PP; 4.0 kg/h PE
Welding rod	Welding rod Ø 4 and 5 mm	Welding rod Ø 4 and 5 mm
Service range	Wall thicknesses 8-30 mm and film welds	Wall thicknesses 8-30 mm and film welds
Weight	7.9 kg	8.0 kg
Drive	230 V AC, with speed control, external powerbox	230 V AC, with speed control, external powerbox
Extruder heating	650 W	650 W
Air heater	2000 W	2200 W
Air supply	External air	Integrated air supply
Air consumption	at least 300 l/min at 0.4 bar	at least 300 l/min
Weld material temperature control	Temperature controller with actual value and set point display	Temperature controller with actual value and set point display
Air temperature control	Temperature controller with actual value and set point display	Temperature controller with actual value and set point display
Cold start protection	Temperature-controlled start interlock as a function of weld material and preheating air temperatures	Temperature-controlled start interlock as a function of weld material and preheating air temperatures

Warranty Certificate

.....

.....

.....

Name and address of Purchaser

Type of unit: Hand extruder

Type designation: ME-40 / MA-40

Serial number:

Purchase order date:

Your Warranty

MUNSCH Kunststoff-Schweißtechnik GmbH hereby warrants the unit to be free from defects in material and workmanship from the date of its first acquisition. Should deficiencies resulting from defects in materials or workmanship be identified during the warranty period, the dealers will, in accordance with the following conditions, repair the unit or - at their discretion – replace the unit or the defective components without charging labour or material costs.

.....

Stamp and signature of dealer

Warranty

- 1 The manufacturer warrants freedom from defects in materials and workmanship and state-of-the-art performance of the purchased article for a period of six months from the date of delivery.
- 2 The Purchaser shall check the article delivered for completeness and freedom from defects immediately after receipt.
- 3 The Purchaser is entitled to the making good of defects and any resulting damage to other parts of the purchased article (remedial work).

The procedure for claims under this warranty shall be as follows:

 - 3.1 The Purchaser may assert claims under this warranty either with his dealer or with a company authorized by the manufacturer to provide services for the purchased article. The Purchaser shall give written notice of defects to the respective company immediately after such defects have been identified or have such defects registered by the respective company.
 - 3.2 Defects shall be promptly remedied in accordance with the technical requirements by either replacement or repair of the defective parts, the cost of the remedial work being for the account of the Manufacturer. Replaced parts shall become the property of the Manufacturer. If, as a result of the remedial work, additional maintenance measures are prescribed by the Manufacturer, the resulting costs including the costs of materials and lubricants shall be for the Manufacturer's account.
 - 3.3 For replacement parts installed within the scope of the remedial work, a new 6-months warranty period shall begin from the date of replacement.
 - 3.4 For the warranty to become effective, this warranty certificate must be produced before each repair.
- 4 If the defect cannot be remedied or if the Purchaser cannot be reasonably expected to accept further attempts at making good the defect, the Purchaser may demand annulment (cancellation of the purchase contract) or a price reduction (reduction of compensation) in lieu of remedial work. In such a case, the Purchaser shall no be entitled to any replacement.
- 5 Manufacturer's warranty obligations shall not be affected by a change in ownership of the purchased article.
- 6 **Expressly excluded** from this warranty is damage incurred through
 - 6.1 Purchaser's failure to report a defect pursuant to subsection 3a) or to provide an opportunity to remedy the defect immediately upon request
 - 6.2 improper handling or overload operation of the purchased article or
 - 6.3 prior repair, maintenance or servicing of the purchased article by a company not authorized by the manufacturer, if the Purchaser can be reasonably expected to have known that such company was not authorized;
 - 6.4 the installation of parts into the purchased article without having obtained the Manufacturer's prior approval for such parts or the modification of the purchased article in a way not approved by the Manufacturer or
 - 6.5 Purchaser's failure to observe the instructions given in the user's manual accompanying the purchased article (e.g. operation, maintenance and care) or
 - 6.6 the Purchaser having removed the serial number or made it illegible.
- 7 Natural wear and tear shall be expressly excluded from the warranty.
- 8 Accidents, force majeure or other circumstances beyond the control of the Manufacturer, in particular damage caused by lightning, overvoltage, water, fire etc. shall be excluded from the warranty.
- 9 All rights under this warranty shall become null and void on expiry of the warranty term pursuant to Section 1. For claims asserted within the warranty term but not settled by its expiry, the warranty shall remain effective until the respective defect is remedied. The period of limitation shall be suspended for such claim.

Hand Extruder ME-40/MA-40

MUNSCH Kunststoff-Schweißtechnik GmbH

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